

CLAIMS

1. A massaging apparatus comprising a supporting arm (26) having a therapeutic member pivotally supported thereon and movable along the body of a user, characterized in that the position of specific portion of the user with respect to the massaging apparatus is determined from the relation between the vertical position of the supporting arm (26) and the pivotal position of the supporting arm (26).

2. A massaging apparatus comprising a supporting arm (26) having a therapeutic member pivotally supported thereon and movable along the body of a user, characterized in that a pivotal-position-detecting sensor (60) for detecting that the supporting arm (26) reached a prescribed range of pivotal movement is provided.

3. A massaging apparatus comprising a supporting arm (26) having a therapeutic member pivotally supported thereon and movable along the body of a user, characterized in that a pivotal-position-detecting sensor (60) for detecting the pivotal position of the supporting arm (26) is provided.

4. A massaging apparatus comprising a supporting arm (26) having a therapeutic member pivotally supported thereon and movable along the body of a user, characterized in that the position of the specific portion of the user with respect to the massaging apparatus is determined from the vertical position of the supporting arm (26) at the moment when the

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pivotal position of the supporting arm (26) reached a prescribed range.

5. A massaging apparatus as set forth in Claim 2, characterized in that the pivotal-position-detecting sensor (60) comprises an optical sensor having a light emitting element (57) and a light receiving element (58), and the fact that the supporting arm (26) reached the prescribed range of pivotal movement is detected by determining whether or not light from the light emitting element (57) is received by the light receiving element (58).

6. A massaging apparatus as set forth in Claim 2, characterized in that the pivotal-position-detecting sensor (60) comprises a limit switch (63), and the fact that the supporting arm (26) reached the prescribed range of pivotal movement is detected by switching of the limit switch (63) between ON and OFF.

7. A massaging apparatus as set forth in Claim 2, characterized in that the pivotal-position-detecting sensor (60) comprises a lead switch (66), and the lead switch (66) is switched between ON and OFF by the change of the magnetic field at the moment when the supporting arm (26) reached the prescribed range of pivotal movement.

8. A massaging apparatus as set forth in Claim 3, characterized in that the pivotal-position-detecting sensor (60) comprises a variable resistor (69) or an encoder of which

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the output varies according to the pivotal position of the supporting arm (26).

9. A massaging apparatus as set forth in Claim 3, characterized in that the pivotal-position-detecting sensor (60) comprises a magnetoelectric converting element, and the output of the magnetoelectric converting element varies with the variation in magnetic field due to the pivotal position of the supporting arm (26).

10. A massaging apparatus as set forth in Claim 1 or 4, characterized in that the position of the specific portion of the user to be determined is the position of the shoulder.

11. A massaging apparatus as set forth in Claim 2 or 3, characterized in that there are provided a pair of left and right supporting arms (26) and a pair of pivotal-position-detecting sensors (60) corresponding to the respective supporting arms (26).

12. A massaging apparatus comprising a therapeutic member (126) for massaging a user's body provided so as to move freely along the user's body in the vertical direction, characterized in that a position detecting means (138) for detecting a position of a specific portion (S) of the body is provided so that a detected value (β_1 , β_2) obtained by the position detecting means (138) in the process of movement of the therapeutic member (126) from a lower position to an upper position of the specific portion (S) is recognized as the

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position of the specific portion (S) of the body.

13. A massaging apparatus as set forth in Claim 12, characterized in that the detected value (β_1 , β_2) obtained by the position detecting means (138) in the process of reverse and upward movement of the therapeutic member (126) after being moved downward to the position lower than the specific portion (S) of the body once is recognized as the position of the specific portion (S) of the body.

14. A massaging apparatus as set forth in Claim 12, characterized in that a first value (α_1 , α_2) detected by the position detecting means (138) in the process of downward movement of the therapeutic member (126) from the upper position of the specific portion (S) of the body and a second value (β_1 , β_2) detected by the position detecting means (138) in the process of upward movement thereof from the lower position of the specific portion (S) of the body are compared, and when these values are close agreement with each other, the second value (β_1 , β_2) is recognized as the position of the specific portion (S) of the body.

15. A massaging apparatus as set forth in Claim 12, characterized in that the therapeutic member (126) moves upward a plurality of time and the position of the specific portion (S) is detected by the position detecting means (138) in the process of upward movement, and when detected values (β_1 , β_2) are in close agreement with each other, the value (β_2) obtained

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by the final detection is recognized as the position of the specific portion (S) of the body.

16. A massaging apparatus comprising a therapeutic member (226) for massaging a user's body provided so as to move along the body, characterized in that the therapeutic member (226) is provided via a supporting body (225) projecting toward the user, and a detector (240) for directly detecting the shoulder (S) of the user is provided on a position of the supporting body (225) behind the therapeutic member (226).

17. A massaging apparatus comprising a therapeutic member (226) for massaging the user's body provided so as to move along the body as set forth in Claim 16, characterized in that the therapeutic member (226) is mounted via a supporting body (225) projecting toward the user, the supporting member (225) is provided with a pair of supporting portions (225a, 225b) on which there are provided therapeutic member (226) respectively, there is provided between the supporting portions (225a, 225b) a space (X) opening toward the user and being able to receive the user's shoulder (S), and the supporting body (226) is provided with a detector (240) for directly detecting the shoulder (S) of the user within the space (X) as a range of detection.

18. A massaging apparatus as set forth in Claim 16 or 17, characterized in that the detector (240) is constructed of a micro switch that is turned ON and OFF when it comes into contact

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with the user's shoulder (S).

19. A massaging apparatus as set forth in Claim 16 or 17, characterized in that said detector (240) is constructed of a pressure sensor for detecting the load applied by the shoulder (S) when it comes into contact with the user's shoulder (S).

20. A massaging apparatus comprising a massaging unit (307) having a therapeutic member for performing massaging motion provided so as to move along a user's body, characterized in that equipment to be arranged on a specific portion of the user's body is provided so that the position of the equipment with respect to the massaging apparatus is detected to determine the position of the specific portion of the user with respect to the massaging apparatus.

21. A massaging apparatus comprising a massaging unit (307) having a therapeutic member for performing massaging motion provided so as to move along a user's body, characterized in that there are provided equipment to be arranged on a specific portion of the user's body and detecting means (359) for detecting the position of the equipment with respect to the massaging apparatus so that the position of the specific portion of the user with respect to the massaging apparatus is determined from the position of the equipment with respect to the massaging apparatus detected by the detecting means (359).

22. A massaging apparatus comprising a massaging unit (307)

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having a therapeutic member for performing massaging motion provided so as to move along a user's body, characterized in that detecting means (359) is provided between equipment of the massaging apparatus to be arranged at a specific portion of the user's body and the massaging unit (307) for detecting that both of them are approaching with each other, so that the position of the specific portion of the user with respect to the massaging apparatus is determined from the position of the massaging unit (307) at the moment when the approach of the equipment and the massaging unit are detected by the detecting means (359).

23. A massaging apparatus as set forth in Claim 21 or 22, characterized in that the detecting means (359) comprises a magnetic body (357) mounted on one of the equipment and the massaging unit (307), and a magnetic sensor (358) mounted on the other one of them.

24. A massaging apparatus as set forth in Claim 21 or 22, characterized in that the equipment of the massaging apparatus is a pillow (351) of the massaging apparatus having a seatback portion (304), and the pillow (351) is mounted on the front surface of the seatback portion (304) so as to be adjustable in the upward and downward direction, so that the position of the specific portion of the user with respect to the massaging apparatus is determined by detecting the position of the pillow (351) arranged at the user's head.

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25. A massaging apparatus as set forth in Claim 21 or 22, characterized in that the equipment of the massaging apparatus is a remote controller (363) for controlling the massaging apparatus, and the position of the specific portion of the user with respect to the massaging apparatus is determined by detecting the position of the remote controller (363) with respect to the massaging apparatus when the user arranged the remote controller (363) at the specific portion of the user.

26. A massaging apparatus as set forth in any one of Claims 20 to 22, characterized in that the position of the shoulder with respect to the massaging apparatus is determined as a position of the specific portion of the user.

27. A massaging apparatus comprising a main body (402) of the massaging apparatus, a therapeutic member (414) provided on the body (402) of the massaging apparatus so as to move along a user's body in the vertical direction for giving a massage to the user, and a position control element (449, 450) for positioning the therapeutic member (414) manually to arbitrary positions, characterized in that a memory (439) for storing the position of the therapeutic member (414) determined by the manual operation of the position control element (449, 450) as a reference position is provided.

28. A massaging apparatus comprising a main body (402) of the massaging apparatus, a positioning body (414) provided on the main body (402) of the massaging apparatus so as to move

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along a user's body in the vertical direction, and a position control element (449, 450) for manually positioning the positioning body (414) at arbitrary positions, characterized in that a memory (439) for storing the position of the positioning body (414) determined by the manual operation of the position control element (449, 450) as a reference position is provided.

29. A massaging apparatus comprising a positioning body (414) provided on the main body (402) of the massaging apparatus so as to move along a user's body in the vertical direction, of which the movement is controlled by instructions from a control element (438), characterized in that a reference-position-determining control element (453) for performing determination of the reference position for the positioning body (414) is provided, and the control element (438) detects the position of the positioning body (414) at the moment when the reference-position-determining control element (453) is operated as a reference position.

30. A massaging apparatus as set forth in any one of Claims 27 to 29, characterized in that the reference position is the shoulder position.

31. A massaging apparatus comprising a massaging member (533), and a massage drive (511) including an air cell (577a, 577b) that is inflated to advance the massaging member (533) toward a user and is deflated to retract the same from the user,

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the massage drive (511) being constructed to move along the user's body, characterized in that detecting means (603) for detecting inflation and deflation of the air cell (577a, 577b) is provided.

32. A massaging apparatus as set forth in Claim 31, characterized in that a base portion (539) that advances toward and retracts from the user according to inflation and deflation of the air cell (577a, 577b) is provided, and a massaging member (533) is mounted on the base portion (539), so that the detecting means (603) detects the movement of the base portion (539).

33. A massaging apparatus as set forth in Claim 31 or 32, characterized in that the detecting means (603) is a limit switch that is turned ON and OFF according to inflation and deflation of the air cell.

34. A massaging apparatus comprising a therapeutic member (726) for massaging a user's body, and a supporting body (725) for supporting the therapeutic member (726) via a supporting shaft (730), characterized in that a detector (740) for detecting a load in the axial direction applied to the therapeutic member (726) is provided between the supporting body (725) and the therapeutic member (726) in the axial direction of the supporting shaft (730).

35. A massaging apparatus comprising a therapeutic member (726) for massaging a user's body provided so as to move freely

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along the user's body in the vertical direction, characterized in that a detector (740) for detecting a load applied to the therapeutic member (726) in the lateral direction is provided, and the load applied to the therapeutic member (726) from the body in the lateral direction is detected by the detector (740) while moving the therapeutic member (726) in the vertical direction, and a position of a specific portion of the body in the vertical direction is determined based on the detection.

36. A massaging apparatus as set forth in Claim 35, characterized in that a supporting body (725) for supporting the therapeutic member (726) via the supporting shaft (730) having a lateral axis is provided, and the detector (740) is provided between the supporting body (725) and the therapeutic member (726) in the direction of the axis of the supporting shaft (730).

37. A massaging apparatus as set forth in Claim 34 or 36, characterized in that the therapeutic member (726) is mounted rotatably about the axis of the supporting shaft (730), and the detector (740) is provided on the side of the supporting body (725) with the movement about the axis of the supporting shaft (730) restrained.

38. A massaging apparatus as set forth in any one of Claims 34 to 37, characterized in that the detector (740) is provided with a pre-load applied.

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